REMARKS

Claims 1-15 are pending in the above-identified application. Claims 2, 4-6, and 11-15 are amended. No new subject matter is added. Applicants respectfully submit that this Amendment is fully responsive to the Office Action dated December 22, 2005.

Claims 2, 4-6, and 11-15 were objected to because of informalities. Therefore, to expedite prosecution, Applicants hereby amend these claims in accordance with the Examiner's suggestions to replace the term "injecting" with "spraying". Accordingly, Applicants respectfully request that the Examiner withdraw the objection to these claims.

Claims 1 and 7 were rejected under 35 U.S.C. §102(b) as being anticipated by *Saito et al.* (2003/0041968 A1). In view of the following remarks, Applicants respectfully request that the Examiner withdraw the anticipation rejection of these claims.

Anticipation requires the presence in a single prior art reference of the disclosure of each and every element of the claimed invention, arranged as in the claim. However, contrary to the Examiner's statement that all elements are disclosed in the cited reference, *concurrently spraying nitrogen gas and water on the surface of the interconnection layer buried in the opening* is not, so the rejection is unsupported by the art and should be withdrawn.

For example, the present invention according to claim 1 has the technical feature that nitrogen gas and water are concurrently sprayed on the surface of the interconnection layer buried in the opening. This feature, for example, offers the technical effect that the rate of generating the conduction defects of the interconnection layer is suppressed low and the stress-migration

resistance of the interconnection layer is increased, due to the behaviors of nitrogen gas and water.

On the other hand, *Saito et al.* teaches a method substantially different from the present invention and never discloses or suggests the technical feature and effect of the present invention as described below.

The technique disclosed in *Saito et al.* is related to processing for etching and cleaning a peripheral portion (bevel portion) or a reverse side of a substrate for removing a metal thin film thereon which causes metal contamination. For instance, in paragraph [0080] the Examiner refers to, it is described that a chemical liquid is supplied to a bevel portion of a wafer W while oxygen is being purged from a chamber 14 by a nitrogen gas. The nitrogen gas is used only for purging oxygen from the chamber and can be replaced with other inert gases. There is no significance in using the nitrogen gas itself. It is also described in the paragraph [0080] that the level portion of the wafer is cleaned with ultra pure water and dried by a nitrogen gas blown thereto. The nitrogen gas is used only for drying the wafer and there is no significance in using the nitrogen gas itself as well.

Also, in paragraph [0078], it is described that while the peripheral portion of the water W is being etched, a supply pip 3b supplies an etching liquid and an introduction pipe 9 supplies an inert gas, typically a nitrogen gas. The nitrogen gas supplied from the pipe 9 to the center of the wafer W is used for protecting the surface of the wafer W from the etching gas supplied to the

peripheral portion of the water W. The nitrogen gas for this usage is also replaced with other inert gases.

As described, the technique disclosed in *Saito et al.* utilizes nitrogen gases from the technical points which are substantially different from that of the present invention. In the present invention, it is indispensable and of great significance to use a nitrogen gas as the gas which is sprayed to the surface of an interconnection layer concurrently with water. In the present invention, nitrogen on the interconnection layer, which is sprayed concurrently with water, plays an important role in suppressing the rate of generating the conduction defects of the interconnection layer low and increasing the stress-migration resistance of the interconnection layer.

Furthermore, the method disclosed in *Saito et al.* is for processing a redundant metal thin film which is not used as an interconnection layer in a semiconductor device, rather than a processing for an interconnection layer. For example, as defined in paragraph [0050], the peripheral portion of the substrate, which is processed in *Saito et al.*, means an area on the periphery thereof which contains no circuit therein or an area on the periphery thereof which contains a circuit but will not finally be used as a chip. This definition clearly indicates that the technique disclosed in *Saito et al.* is inapplicable to an interconnection layer of a semiconductor device. In the present invention, nitrogen gas and water is sprayed to the surface of the interconnection layer of the semiconductor device. Accordingly, the present invention is

completely different from the technique disclosed in *Saito et al.* regarding the target of the processing.

In view of the above remarks, Applicants respectfully submit that claims 1 and 7 are not anticipated by *Saito et al.*

Claims 2, 3, 6, 8, 9, 12 and 13 were rejected under 35 U.S.C. §103(a) as being unpatentable over *Saito et al.* in view of *Ngo et al.* (6,146,988). Claim 5 is rejected under 35 U.S.C. §103(a) as being unpatentable over *Saito et al.* in view of *Ngo et al.* and further in view of *Li et al.* (2004/0219795 A1). Also, claims 4,10, 11, 14 and 15 were rejected under 35 U.S.C. 103(a) as being unpatentable over *Saito et al.* in view of *Li et al.*

As described above, the present invention according to claim 1 cannot be anticipated by *Saito et al.* Thus, even if *Saito et al.* were further combined with *Ngo et al.* or *Li et al.*, it is clear that the present invention according to these dependent claims would not be obvious to one of ordinary skill in the art at the time the invention was made. Therefore, Applicants respectfully submit that claims 1-15 be allowed.

For at least the foregoing reasons, the claimed invention distinguishes over the cited art and defines patentable subject matter. Favorable reconsideration is earnestly solicited.

Should the Examiner deem that any further action by applicants would be desirable to place the application in condition for allowance, the Examiner is encouraged to telephone applicants' undersigned attorney.

If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,

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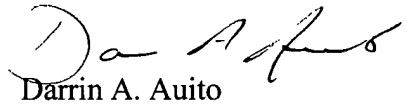

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